

REMARKS

The Office Action of September 29, 2000 was received and carefully reviewed. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Claims 2, 3, 6-9, 11, 12, and 15-42 were pending prior to the instant amendment. By this amendment, claims 9, 18, and 36 are canceled herein, and new claims 43-59 are added to recite additional features of the present invention to which Applicants are entitled. Consequently, claims 2, 3, 6-8, 11, 12, 15-17, 19-35 and 42-59 are currently pending in the instant application.

Claims 9, 18 and 31-42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that is allegedly not described in the specification in a way to convey to one skilled in the art that the inventor had possession of the invention at the time of filing. This rejection is traversed for the reasons advanced below.

The Examiner insists that the specification never discloses the aluminum nitride insulating film has a thickness of 5000 angstroms or less as claimed in claims 31-42. However, the specification discloses that the aluminum nitride film is preferably deposited at a thickness from 100 to 5000 angstroms (see page 5, lines 12-13). Therefore, Applicants contend that this rejection should be withdrawn.

Claims 7, 9, 16, 18, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mano et al., in view of Ikeda. Further, claims 3, 8, 12, 17, 20, 22-24, 26, 28-30, 32, 35, 38 and 40-42 are rejected over Troxell et al. in view of Ikeda, further in view of Yamazaki et al. (JP 62-112128). These rejections are traversed for the reasons advanced in detail below.

The Examiner basically contends that it is well known in the semiconductor art that aluminum nitride has a thermal conductivity of 0.6 W/cm K or higher and that Ikeda shows the insulating AlN layer has an aluminum to nitrogen ratio of 1.0. The Office Action does not, however, point to a specific disclosure in Ikeda to support this conclusion that the range noted by Applicant is disclosed therein. Further, the Office Actions fails to provide a single reference to support the contention that it is well known in the semiconductor art that aluminum nitride has a thermal conductivity of 0.6 W/cmK.

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The Patent Office is required to make rejections with particularity that show where in the prior art specific features of the claimed invention are disclosed or suggested or to provide prior art references to support sweeping conclusions of obviousness. The Office Action fails to provide such a specific reference and prior art citation, and, thus, fails to establish a prima facie showing of obviousness.

As noted above, Applicants are the first to recognize the importance that an aluminum to nitrogen ratio of an aluminum nitride film should be in the range of 0.9 to 1.4, or that the thermal conductivity is 0.6 W/cm K or higher in order that heat generated in a device is sufficiently radiated. Accordingly, it is significant that the aluminum to nitrogen ratio of the aluminum nitride film is in the range of 0.9 to 1.4, or the thermal conductivity of 0.6 W/cm K or higher to achieve the object of the present invention. For the above reason, Applicants contend that the rejected claims are now in proper condition for allowance.

In addition, with regard to claims 31-35 and 37-42, the utilization of an aluminum nitride insulating film of 5000 angstroms or less provides a further manner of sufficient heat emission. As a result, this is not a mere matter of design optimization, and the Office Action fails to point to any reference to suggest an aluminum nitride film of such a thickness.

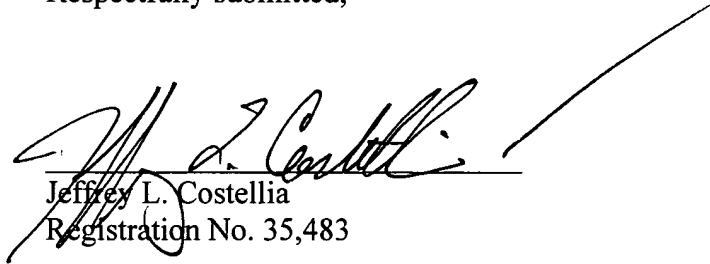
With respect to the doubling patenting rejections provided on pages 5 and 6 of the Office Action, Applicants respectfully request that these rejections be held in abeyance until otherwise allowable claims are present in the instant application. Until that time, the filing of a Terminal Disclaimer may not be premature.

In view of the foregoing, it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 2, 3, 6-8, 11, 12, 15-17, 19-35 and 42 be allowed, that new claims 43-59 be allowed and that the application be passed to issue.

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If a conference would expedite prosecution of the instant application, the Examiner is hereby invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

NIXON PEABODY LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110
(703) 883-0370 FAX

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